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(54) **CAPPED BILL SYSTEMS, METHODS AND PRODUCTS**

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(76) Inventors: **Bernie Bilski**, Pittsburgh, PA (US);  
**Teresa Kishlock**, Murrysville, PA (US);  
**Laura S. Lewis**, Irwin, PA (US); **Jim McLaughlin**, Pittsburgh, PA (US);  
**Vijay Parmar**, Pittsburgh, PA (US);  
**Rand A. Warsaw**, Monroeville, PA (US)

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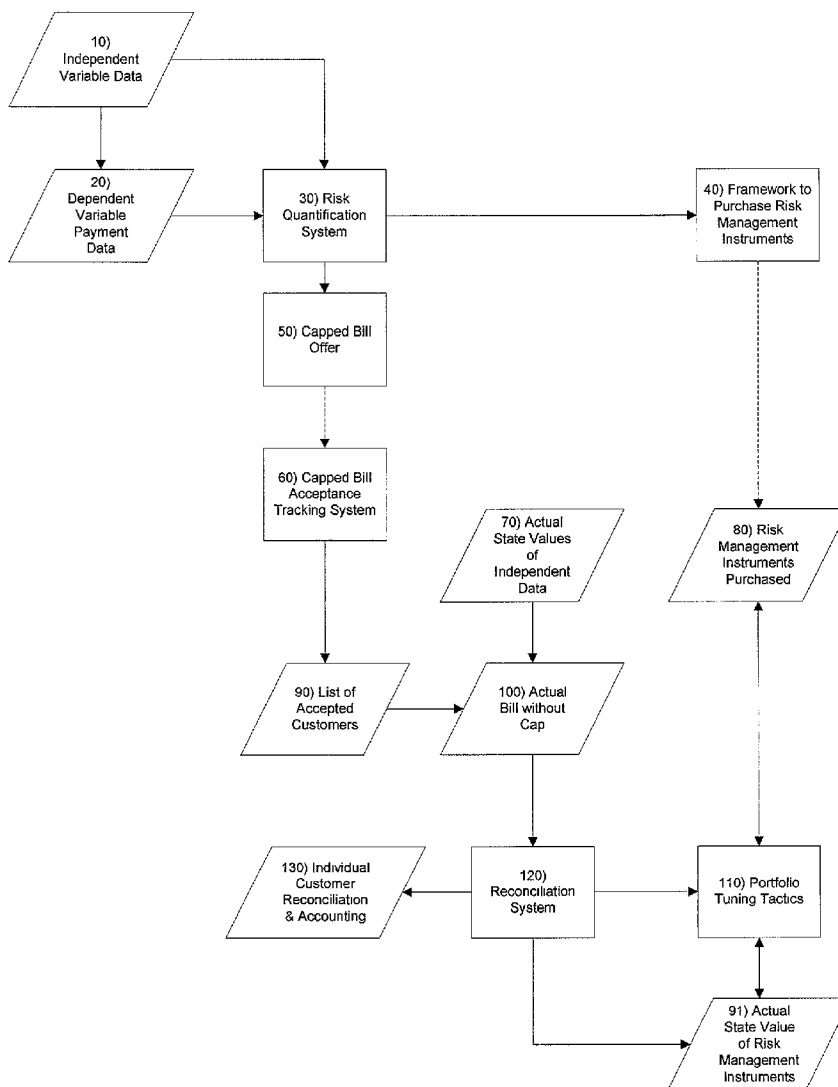
(57) **ABSTRACT**

A method of providing one of a good or a service to at least one entity at one of a payment, rate, or price that is capped at a pre-determined amount. The method includes producing an offer for the entity, wherein the offer represents at least one of a capped maximum payment, a capped maximum rate, a capped maximum usage, a capped maximum consumption, or a capped maximum price amount. The method also includes providing the good or service to the entity at one of a payment, rate, or price that may fluctuate, wherein the payment, rate, or price cannot exceed the capped maximum payment, capped maximum rate, capped maximum usage, capped maximum consumption, or capped maximum price amount.

Correspondence Address:  
**KIRKPATRICK & LOCKHART LLP**  
535 SMITHFIELD STREET  
PITTSBURGH, PA 15222 (US)

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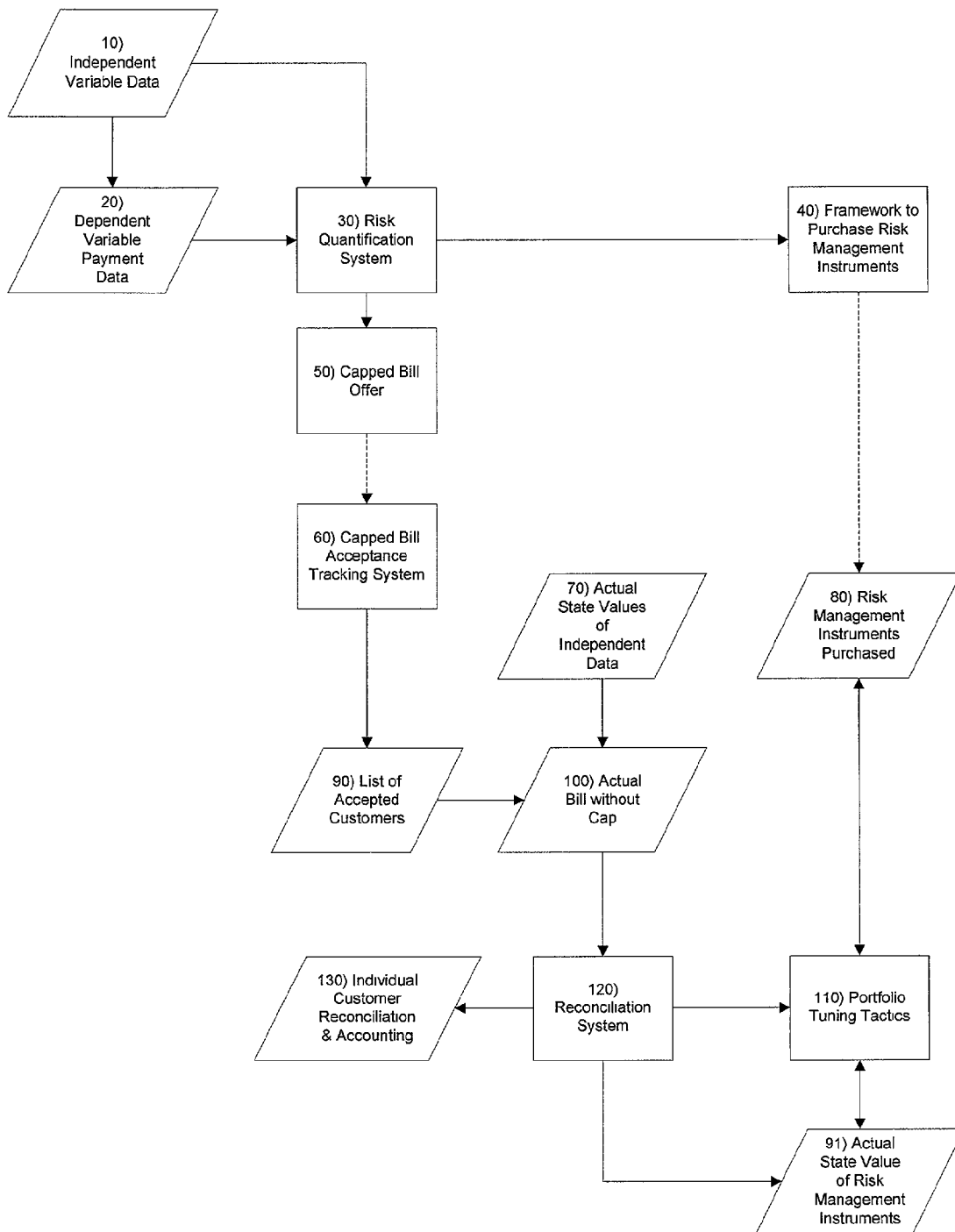


FIG. 1

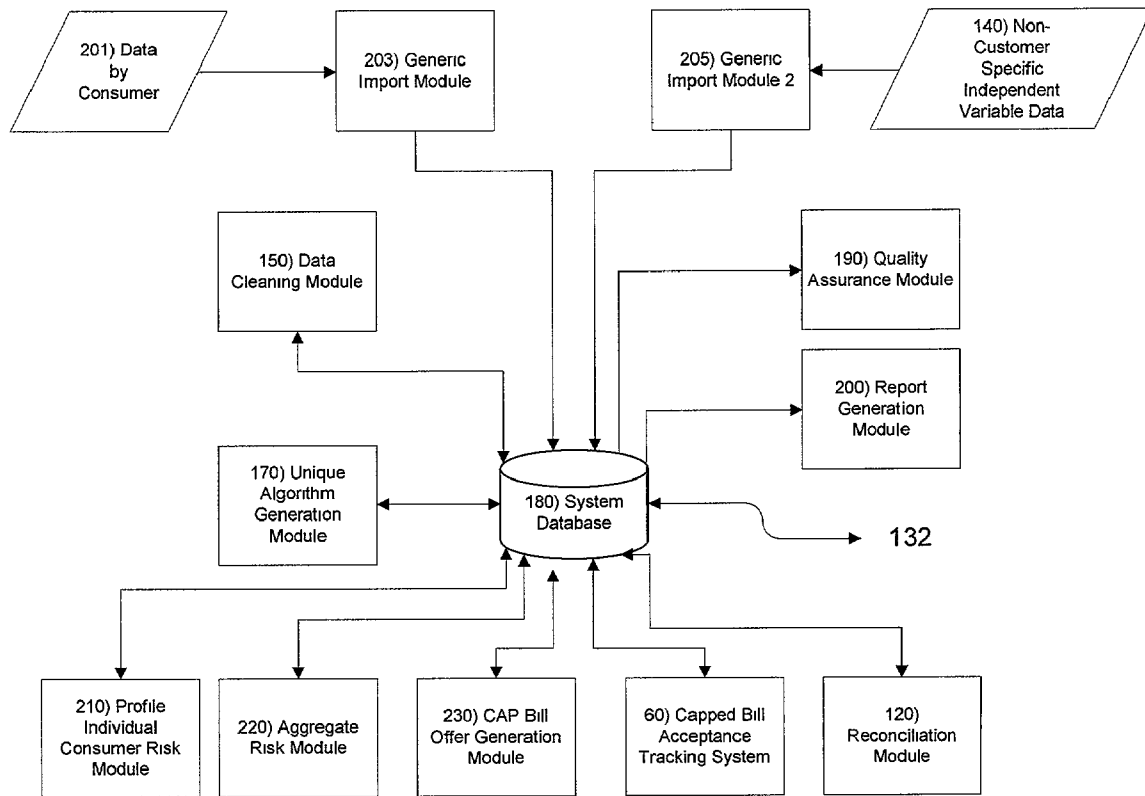


FIG. 2

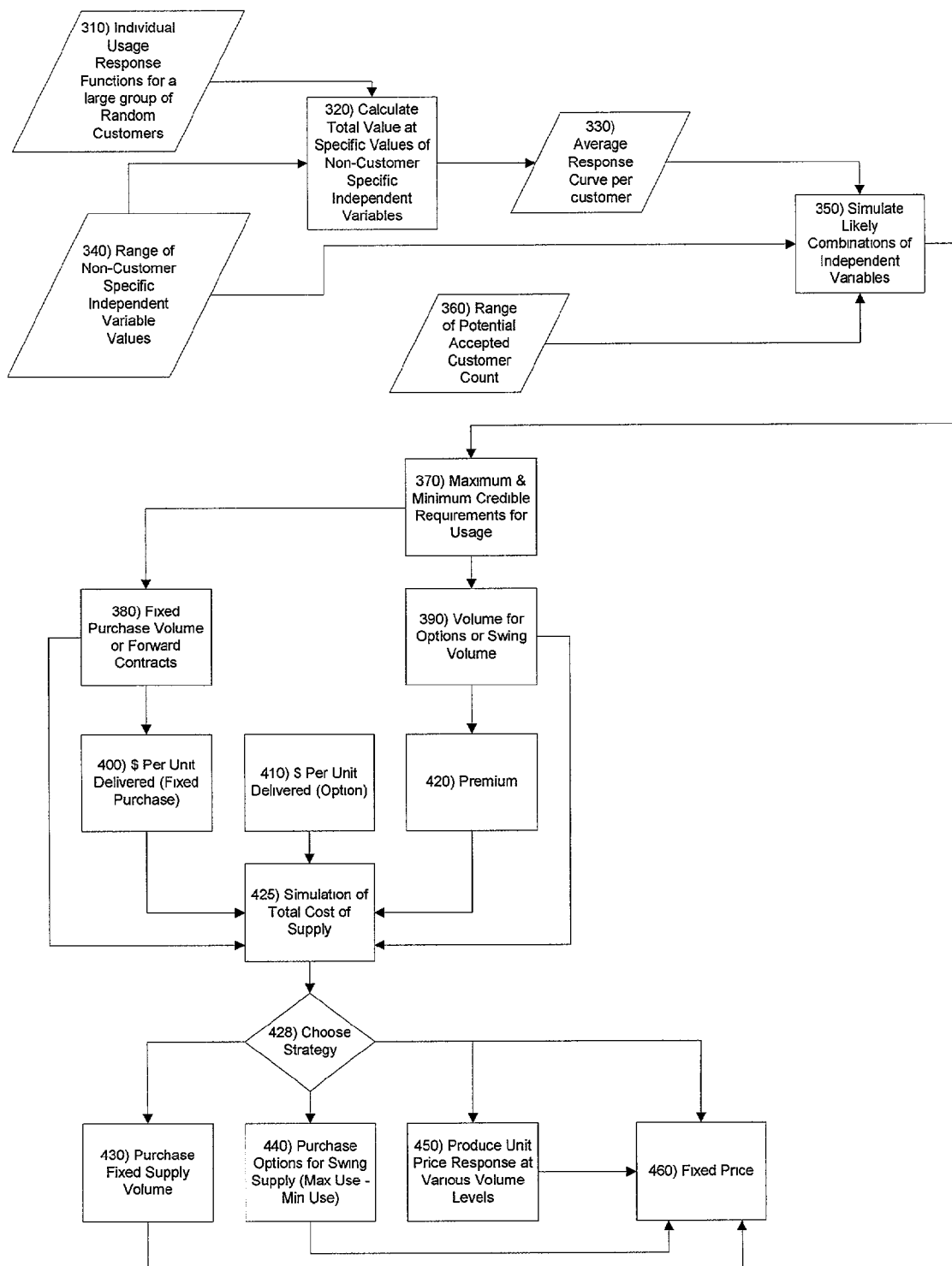


FIG. 3

**Cash Flow where Actual Bill Greater Than Capped Bill**

**Simplified Cash Flow - Consumer**

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
510) Capped Bill Amount	\$100.00	\$100.00	\$100.00	\$100.00	\$400.00
520) Actual Consumer Bill	\$125.00	\$ 75.00	\$100.00	\$125.00	\$425.00
530) Bill Difference	\$ 25.00	\$ (25.00)	\$ -	\$ 25.00	
540) Cumulative Bill Difference	\$ 25.00	\$ -	\$ -	\$ 25.00	\$ 25.00
550) Credit Percentage					100%
560) Credit to Customer					\$ 0.00

**Simplified Cash Flow - Risk Management**

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
510) Capped Bill Amount	\$100.00	\$100.00	\$100.00	\$100.00	\$400.00
520) Actual Consumer Bill	\$125.00	\$ 75.00	\$100.00	\$125.00	\$425.00
530) Bill Difference	\$ 25.00	\$ (25.00)	\$ -	\$ 25.00	\$ 25.00
Payment from Risk Management					
570) Instruments					\$ 25.00

FIG. 4

**Cash Flow where Actual Bill Less Than Capped Bill**

**Simplified Cash Flow - Consumer**

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
610) Capped Bill Amount	\$100.00	\$100.00	\$100.00	\$100.00	\$400.00
620) Actual Consumer Bill	\$ 75.00	\$ 75.00	\$100.00	\$125.00	\$375.00
	\$	\$			
630) Bill Difference	(25.00)	(25.00)	\$ -	\$ 25.00	
	\$	\$	\$	\$	\$
640) Cumulative Bill Difference	(25.00)	(50.00)	(50.00)	(25.00)	(25.00)
650) Credit Percentage					100%
660) Credit to Customer					\$ 25.00

**Simplified Cash Flow - Risk Management**

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
610) Capped Bill Amount	\$100.00	\$100.00	\$100.00	\$100.00	\$400.00
620) Actual Consumer Bill	\$ 75.00	\$ 75.00	\$100.00	\$125.00	\$375.00
	\$	\$			\$
630) Bill Difference	(25.00)	(25.00)	\$ -	\$ 25.00	(25.00)
Payment from Risk					
670) Management Instruments					\$ 0.00

FIG. 5

**CAPPED BILL SYSTEMS, METHODS AND PRODUCTS**

**DESCRIPTION OF THE BACKGROUND**

[0001] Currently, only large consumers are able to get the benefits of traditional financial risk management tools for managing their costs for variable volumes and prices of products and services because of the labor-intensive analysis of risk performed on a manual basis, because of regulations restricting the offering of some financial risk management instruments to only large and sophisticated investors and because the size and cost of available financial instruments may not be appropriate for individual consumer risk management.

[0002] Further, it has not been cost effective to perform the analyses necessary to control volume and price risks for retail consumers such as individual residential or small- to medium-sized commercial customers. The high cost of individual analyses is driven by the need to manually process dependent and independent variable data, individually deal with data deficiencies and to make manual adjustments for incomplete or inaccurate information.

[0003] Current methods and products exist to provide consumers that seek to limit consumer risk in purchasing variable payment products. Examples include capped adjustable rate mortgages, fixed payment plans, flat payment plans, the No Surprise™ bill offered by Reliant Energy/Minnegasco, the WeatherProof® Bill program offered by several licensees of the energy risk management method described in U.S. patent application Ser. No. 08/833,892.

**SUMMARY OF THE INVENTION**

[0004] The present invention is directed to, in one embodiment, a method of providing one of a good or a service to at least one entity at one of a payment, rate, or price that is capped at a pre-determined amount. The method includes producing an offer for the entity, wherein the offer represents at least one of a capped maximum payment, a capped maximum rate, a capped maximum usage, a capped maximum consumption, or a capped maximum price amount. The method also includes providing the good or service to the entity at one of a payment, rate, or price that may fluctuate, wherein the payment, rate, or price cannot exceed the capped maximum payment, capped maximum rate, capped maximum usage, capped maximum consumption or capped maximum price amount.

[0005] The present invention is also directed to, in another embodiment, a capped bill calculation system. The system includes a data input module in communication with a data storage medium for receiving data from at least one entity. The system also includes a capped bill offer generation module for generating an offer, wherein the offer offers one of a good or a service at a price that may fluctuate, and wherein an actual price of the good or service cannot exceed the maximum amount.

**BRIEF DESCRIPTION OF THE DRAWING**

[0006] For the present invention to be clearly understood and readily practiced, the present invention will be described in conjunction with the following figures, wherein:

[0007] FIG. 1 is a diagram illustrating a flow through a capped bill calculation system according to one embodiment of the present invention;

[0008] FIG. 2 is a diagram of a capped bill calculation system according to one embodiment of the present invention;

[0009] FIG. 3 is a flow diagram illustrating a method of producing a fixed unit energy price for use in calculating a capped energy bill according to one embodiment of the present invention; and

[0010] FIGS. 4 and 5 are examples of cash flows between consumers and risk management instruments according to one embodiment of the present invention.

**DETAILED DESCRIPTION OF THE INVENTION**

[0011] It is to be understood that the figures and descriptions of the present invention have been simplified to illustrate elements that are relevant for a clear understanding of the present invention, while eliminating, for purposes of clarity, other elements. For example, specific operating system details and modules and specific database management details and modules are not shown. Those of ordinary skill in the art will recognize that other elements may be desirable to produce an operational system incorporating the present invention. However, because such elements are well known in the art, and because they do not facilitate a better understanding of the present invention, a discussion of such elements is not provided herein.

[0012] The present invention is directed generally to systems and methods in which goods or services are delivered and the customer or consumer (or other entities) is invoiced for a payment or series of payments that are capped. "Capped" is defined herein as meaning a quoted maximum amount or amounts that the customer will pay for their requirements for a product or service for the given period or periods of time. Several examples of such products or services include, but are not limited to, energy bills, communications services, food supply, network services, calculational services, storage space, transportation, fuel, auto leasing, maintenance, or mortgages. Energy and mortgage examples are used herein for the sake of illustration purposes only and not to limit the scope of the invention.

[0013] In one embodiment of the present invention, if the combined effect of drivers of the consumer cost, such as prices and volumes of, for example, energy delivery or interest rates would have resulted in lower bills than the capped amount or amounts less risk management costs, the entity, such as a customer, receives all or a portion of the difference as, for example, a refund or credit. Also, in one embodiment, a system for calculating a capped or maximum annual bill for any consumers of a product or service, for managing the risks associated with the capped annual bill, and for reporting the accounting aspects of the transactions to those consumers and to other interested parties such as utilities, energy suppliers, regulators and other governmental agencies is disclosed. Also, in another embodiment, a specific method of producing capped bills, and using physical and/or financial instruments to hedge the volumes and prices of the product or service to be used is disclosed.

[0014] The present invention is directed, in one embodiment, to a method of receiving, processing and reporting data regarding retail consumers' usage of a product or service and historic non-customer specific independent vari-

able data in large batches of consumers for the purposes of providing offerings of a capped bill to those consumers and managing the volume and price risks associated with each consumer who accepts the commercial offer. The present invention, in one embodiment, utilizes a system that produces mass-customized offers through multiple stages.

[0015] Generally, the first stage of the present invention, in one embodiment, processes both customer-specific dependent and independent variable data and non-customer-specific independent variable data for a group of consumers. In the case of a capped energy bill, the customer-specific dependent variable data could include, for example, historic usage, demand levels and dollars billed. In the case of a mortgage borrowing, the customer-specific dependent variable data could include, for example, the amount borrowed, term of the agreement and related credit risk. A variable such as historic usage may be both independent and dependent. For example, historic usage data are dependent in that they are a function of historic weather. Historic usage is used as an independent variable when calculating dollars billed. For each group of customer-specific dependent variable data to be processed, accurate historic non-customer specific independent variable data may be acquired. In the case of an energy capped bill, the independent data may include, for example, heating degree days, cooling degree days, relative humidity, dew point, atmospheric pressure and precipitation. In the case of a mortgage capped bill, the independent variable data may include, for example, historic interest rates, forward rates and rates currently available. These data may be transmitted over a communication link such as, for example, the Internet, telephone lines or by computer readable media such as, for example, magnetic or optical storage media. Distribution can also be accomplished by distribution to a central storage site on the public Internet, an intranet, a local area network (LAN), a wide area network (WAN) or a direct connection for further access or distribution.

[0016] Both the customer-specific and the non-customer-specific dependent and independent variable data received may be missing some data points or contain gross inaccuracies. The present invention, in one embodiment, detects missing or grossly inaccurate data points and correctly "fills" the data using a variety of algorithms including, but not limited to, regressions, average replacements, deltas off of adjacent weather stations in the case of an energy capped bill, deltas off of prior points, average prior and subsequent point and strategic estimates.

[0017] Each batch of usage data to be processed includes electronic data regarding anywhere from, for example, a few dozen to several million individual retail consumers. In the case of a capped energy bill, for each consumer data regarding, for example, up to 24 months of usage is included. Data for each usage period for each consumer may include individual consumer record keys such as account number, sufficient location information to identify the appropriate weather station, consumption information including meter read data and dates, type of meter read which may include actual, estimate, correction and other billing information. In addition, contact information such as name, address and phone number may be included for reporting purposes.

[0018] In the case of an energy capped bill, the energy usage data (consumption in volumes of fuel such as, for

example, gallons, MCF's, and pounds, etc., or energy units such as, for example, kWh, therms, BTU's, etc.) with related information about the periods of consumption such as starting date and number of days in a period, ending date and number of days in a period, starting and ending dates or a series of days in a period with a beginning or ending offset sufficient to determine the starting and ending dates of each consumption period received from, for example, the utility or energy supplier, may contain known data structure problems such as overlapping or missing meter read periods, invalid dates, such as February 30, invalid years such as 1901 appearing in a data set containing 2001 data, bad estimates, bad meter reads and accounting corrections, including those previously mentioned, and cancels and rebills. The present invention, in one embodiment, examines the data for these and other problems and repairs or removes problematic data elements using a variety of algorithms including, but not limited to, artificial intelligence, regression technology, analysis of variance, outlier analysis and human inspection.

[0019] The second stage of the present invention, in one embodiment, builds a model of how each individual consumer consumes the product or service with respect to the independent variables such as, for example, weather or interest rates. The model may be built specifically for that consumer. In the case of an energy capped bill, the present invention, in one embodiment, examines the cleaned data for a baseline period and develops individual mathematical baseline models representing usage patterns for each consumer. The models may include, but are not required to use, or limited to, the analysis of base non-weather related use, usage sensitivity to changes in weather, temperatures at which the consumer turns on or off their heating and/or cooling systems, humidity, precipitation, wind speed, cloud cover and trend variables. For large consumers of energy, time and effort may be taken to produce a customized model of behavior. For small consumers, there have been some attempts at automated energy consumption model generation, such as the Prism approach, described in Fels, M., "PRISM: An Introduction", Energy and Buildings, 9 (1986), pp. 5-18. The present invention, however, provides a method of automated model generation for a large number of individual consumers and a method of aggregating the individual models into response curves suitable for price and volume risk management.

[0020] The third stage of the present invention, in one embodiment, uses the individual models to produce a profile of individual levels of dependent variables with respect to differing states of the independent variables for a group of consumers that statistically represent the type and weighting of consumers who are likely to accept the capped bill offering. In the case of an energy capped bill, producing this calculation at various customer counts will provide the range of weather-related consumption in which to price hedge. In the case of borrowing, this calculation at various customer counts will provide a range of interest related risk in which to hedge. Financial or physical, in the case of energy, options and swaps can be used to fix unit price over the range. Having a fixed unit price as an input to a later calculation may be desirable. Thus, a fixed unit price, prices or interest rates to be used may be assumed.

[0021] The fourth stage of the present invention, in one embodiment, constructs a model of consumer risk related to

the non-customer specific independent variables at the assumed prices used in the second stage. For example, in the case of an energy capped bill, weather risk may be simulated by using the range of weather conditions historically found or by using an assumed range of likely weather conditions to drive the individual consumer models. In the case of borrowing, interest rate risk may be simulated by using the range of interest rates historically found or by using an assumed range of likely interest rates to drive the individual consumer models. The results are either aggregated into response curves or calculated individually. Risk management is also performed.

[0022] The fifth stage of the present invention, in one embodiment, uses the individual models in conjunction with risk management calculations to produce individual offers for the capped bills. These offers may be based on a normalized consumption plus program fees and risk management costs. In the case of capped energy bills, this could be consumption normalized based on weather. In the case of borrowing, this could be lending calculations based on prevailing interest rates, term of loan and risk management costs. They may also be based on value at risk methodology.

[0023] The duration of the capped bill program term may be, for example, a month, a quarter, a year, a multi-year period or any other time period specified by the program terms such as, for example, a heating season from October-May or a cooling season from June-August. The program term may consist of one or more capped bill periods. A customer's bill amount may be capped at a different amount during each period or may be flattened to one capped bill amount for each capped bill period. Averaging or time value of money calculations may be performed to produce a constant cap over each period or across multiple periods.

[0024] The sixth stage of the present invention, in one embodiment, tracks the consumption and price over the program to calculate what refunds, if any, are due. In the case of a capped energy bill, in each capped bill period, if weather and price changes would have resulted in a lower actual consumer bill, then all or a portion of those savings may be refunded to the consumer in any one of numerous business scenarios. In the case of borrowing, if actual interest rates would have resulted in a lower payment or shorter term, then all or a portion of those savings may be refunded to the customer or used to reduce the principal amount of the loan. The refund may occur in one or more settlement periods during the capped bill program. An example of refund generation can be seen if, for each capped bill period, the amount calculated by subtracting the total actual bill amounts during the period from the total capped bill amounts during the period exceeds the consumer's hedging costs and program fees. The excess amount is considered the bill difference. Individual bill differences may be accrued during settlement periods, which may consist of one or more of the capped bill periods. In one embodiment, for example, the refund or a portion of the refund may be made to a third party such as a utility or aggregator that has outstanding receivables from the consumers. In one embodiment, the consumer may be unaware that they are participating in a capped bill program.

[0025] If the bill difference is positive, the amount of the bill difference multiplied by the credit percentage is the credit amount. The credit percentage ranges from 0% to

100% and represents the percentage of the bill difference that will be credited to the customer. The credit amount may be, for example, credited to the customer at the end of each capped bill period, may be accumulated and credited to the customer at the end of the capped bill program or may be accumulated and credited to the customer on any schedule specified in the capped bill program contract.

[0026] FIG. 1 is a diagram illustrating a flow through a capped bill calculation system according to one embodiment of the present invention. Dependent variable payment data **20** are input into a risk quantification system **30**. The dependent variable data **20** may be, for example, a variable payment amount in a mortgage or lending calculation or a variable utility bill. The dependent variable data **20** are dependent on independent variable data **10**. In a mortgage example, the independent variable data **10** include, for example, the principal amount borrowed, real estate and/or school taxes escrowed, an interest rate and a number of periods. In an energy bill example, the independent variable data **10** include, for example, weather, metered consumption (which is dependent on weather and personal usage patterns), price and other variables such as taxes and other charges. The risk quantification system **30** produces two or more sets of values using historic or inferred states of independent variables. The first set of values is the level of cap or caps appropriate for a capped bill offer **50**. The second set of values is a framework in which to purchase risk management instruments **40** in which to control the risk from a capped bill program. In the broadest sense, the risk quantification system **30** could be, for example, an educated estimate of a value that is deemed by some individual as appropriate for the customer. The risk management framework **40** may be the absorption of the risk implicitly by the offeror.

[0027] The capped bill offer **50** is made to consumers. The offer **50** may be structured so that the maximum amount to be paid by the consumer over the term of the offer **50** is the consumer's initial agreed upon payment amount. Should conditions (e.g., interest rate in mortgages or weather and or energy unit prices in energy) change such that certain commercial conditions in the offer to consumers **50** are triggered, the consumer would be contractually entitled to a partial or complete refund from the amount that had been paid by the customer. This differs from a capped adjustable rate mortgage in that for the consumer of an adjustable-rate mortgage, the interest rate level and periodic repayment amount for the mortgage may increase or decrease from the interest rate and periodic repayment amount that was agreed upon when the mortgage loan was taken by the consumer but will not exceed a maximum interest rate or periodic repayment amount, whereas in the present invention, the periodic payment or repayments represent the maximum interest rate and/or maximum periodic repayment amount for that mortgage. If current interest rates are lower than those rates used to calculate the capped mortgage amount at the origination of the mortgage, then one or more of several things could occur, such as the periodic repayment amount could be reduced or the principal amount of the mortgage could be reduced or the amount of excess payment could be refunded to the borrower.

[0028] The capped bill is different from an insurance policy that refunds premiums after a number of periods in several ways. For example, an insurance policy anticipates

a very long cycle and is based on low probability high impact events, whereas the capped bill is based on consumption of services or goods over performance periods that are anticipated to be continuing onward in time. However, each performance period is individually calculated or priced with respect to current rates. The risk management for a capped bill is applied to individual capped periods without respect to other consumers or entities in the pool, whereas in an insurance policy, risk management is pooled on an actuarial basis and refunds are designed to return a portion of the premium based on the individual claims history. The actuarial nature of an insurance policy counts on premium revenues exceeding benefits paid and the ability of the insurance company to invest the premiums to generate income. In the capped bill, it would not be unusual for all consumers or a majority of the consumers to receive refunds during the same capped bill period.

[0029] A capped bill acceptance tracking system **60** is used to keep track of capped bill offers **50** that have been made, and to keep track of subsequent acceptances. The capped bill acceptance tracking system **60** produces a list of accepted customers **90**. In its simplest form, the capped bill tracking system **60** could be a pencil and paper-produced list.

[0030] The risk management instruments purchased **80** may be purchased using the framework to purchase risk management instruments **40**. Optionally, they may be adjusted by human decisions or completely excluded if the offeror of capped bill offers **50** chooses to absorb the risk or a portion of the risk.

[0031] During the performance period state of the independent data, actual values of independent data **70** drive the values calculated by the reconciliation system **120** of the actual bill without cap **100**, and the value of each of the financial instruments purchased to reduce the risk **80**. The reconciliation system **120** provides individual customer reconciliations with respect to the independent variables as well as calculating the actual state value of risk management instruments **91** used to provide portfolio tuning tactics **110** as to tuning the risk management instruments purchased **80** by buying more or selling some of the existing instruments. In one embodiment of the invention, instrument tuning is not required to be done if an offeror is self-absorbing the risks. Individual reconciliation **130** may be required to provide refunds if any are contractually due.

[0032] FIG. 2 is a diagram of a capped bill calculation system **132** according to one embodiment of the present invention. Data by consumer **201** contained within a database for individual consumers or provided by individual consumers are transmitted over a communication link such as, for example, the Internet, telephone lines or by computer readable media such as, for example, magnetic or optical storage media. Distribution can also be accomplished by distribution to a central storage site on, for example, the public Internet, an intranet, a local area network (LAN), a wide area network (WAN) or a direct connection for further access or distribution. Alternatively, data can be transmitted verbally and transcribed or keyed into the generic import module **203**. Data for consumers **201** may include individual consumer record keys such as, for example, account number, and independent variable values, (e.g. consumption information including meter read data and dates, type of meter

read which may include actual, estimate, correction and other billing information in the case of energy bills, principal amount borrowed, interest rate, credit risk and term in the case of borrowing). An alternate method would be to provide summaries of individual statistics grouped by zip code, income level, by square footage of home, or other demographic variables in order to provide capped bill offers to groups of similar customers. In addition, contact information such as name, address and phone number may be included for a report generation module **200** and the capped bill acceptance tracking system **60**. Additional information may be required such as conversion factors from energy units to alternate energy units or dollars or forward expected interest rates. This data transmission may occur at one time or many times throughout the process.

[0033] Generic import module **203** accepts the data by consumer **201** and imports the data into the appropriate positions in a System Database **180**.

[0034] Data cleaning module **150** examines the data for known data structure problems (e.g. overlapping meter read periods, invalid dates, bad estimates, bad meter reads and accounting corrections) and cancels and rebills in the case of energy capped bills. In addition, the data cleaning module **150** repairs or removes problematic data elements.

[0035] Non-customer-specific independent variable data **140** are transmitted over a communication link such as, for example, the Internet, telephone lines or by computer readable media such as, for example, magnetic or optical storage media. Distribution can also be accomplished by distribution to a central storage site on, for example, the public Internet, an intranet, a local area network (LAN), a wide area network (WAN) or a direct connection for further access or distribution. Alternatively, data can be transmitted verbally and transcribed or keyed into the generic import module **205**. Non-customer-specific independent variable data **140** may include, for example, heating degree days, cooling degree days, relative humidity, dew point, atmospheric pressure, precipitation, wind speed and cloud cover percentage in the case of energy capped bills or interest rates in the case of borrowing capped bills.

[0036] Generic import module **205** accepts the non-customer-specific independent variable data **140** and imports them into appropriate positions in the system database **180**.

[0037] Data cleaning module **150** examines the data for known data structure problems such as invalid values or missing data. In one embodiment, the present invention fills missing data points using methods which may include, for example, averaging, regression, interpolation between neighboring weather stations, application of normals and application of known biases to data from neighboring stations.

[0038] Unique algorithm generation module **170** examines the cleaned data for a base period and develops individual mathematical baseline models (the models may be, in some instances, the same for a group of customers) representing response patterns for each consumer with respect to the non-customer-specific independent variables. Each model, in the case of energy capped bills, may include an analysis of, for example, base non-weather related use, usage sensitive to changes in weather, temperatures at which the consumer turns on or off their heating and/or cooling systems

and trend variables. In the case of borrowing, the model may include an analysis of, for example, principal amount borrowed, credit criteria, historic interest rates, forward interest rates and term. The algorithms generated by the algorithm generation module **170** may be, for example, stored in the system database **180** or may be used immediately in other modules without storage.

[**0039**] Profile individual consumer risk module **210** exercises the baseline model for each consumer over a variety of states of the non-customer specific independent variables **140** that represent the total risk space. These states can be generated by, for example, simulating past variable states or choosing states from distributions manufactured by examining past states or manufactured using other statistical methods. In the case of an energy capped bill, one method of accomplishing this would be to use actual weather data that occurred in a period subsequent or prior to the base period to determine an estimate of each consumer's expected consumption at different temperatures.

[**0040**] The profile individual consumer risk module **210** converts the results to a response function or set of functions of dependent variable states with respect to the non-customer specific independent variables. These response functions may be, for example, stored within the system database **180** or used immediately by other modules.

[**0041**] The aggregate risk module **220** converts the response functions for groups of individual consumers into a set of aggregate response curves. The curves may be, for example, stored within system database **180** or used immediately by other modules.

[**0042**] The aggregate curves generated by the aggregate risk module **220** are used to generate a framework used to design a strategy and to price and purchase risk management instruments **40**. **FIG. 2** illustrates a manual decision-making process to determine the strategy and related cost of the strategy. The cost of these instruments and other pricing variables are used in conjunction with the profile individual consumer risk models to generate capped bill offers for consumers in the capped bill offer generation module **230**. These offers may be, for example, stored within the system database **180** for later use or transmitted directly to the customers.

[**0043**] Quality assurance module **190** executes methods of quality control to assure the accuracy of calculations and output. The module **190** randomly pulls a sample of individual calculations to be compared to a hand calculation performed by the system operator or parallel operation performed by a second system. In addition, issues that are missed in the data cleanup may be determined at this stage. A system of prescribed reality checks using tests of known ratio ranges also are used to detect problems with modeling or data cleaning. This step is important in establishing credibility with consumers and other interested parties such as regulators, legislators lending institutions and utilities. Module **190** also ensures that each input record is accounted for and ensures data integrity through the report generation module **200**. Individual capped bill offers may be, for example, transmitted through the report generation module **200** to individual consumers or delivered in bulk to interested parties such as lending institutions or utilities. Such delivery may be transmitted over a communication link such as, for example, the Internet, telephone lines or by computer

readable media such as, for example, magnetic or optical storage media. Distribution can also be accomplished by, for example, distribution to a central storage site on the public Internet, an intranet, a local area network (LAN), a wide area network (WAN) or a direct connection for further access or distribution. Alternatively, data can be transmitted verbally or through carrier delivery.

[**0044**] The capped bill acceptance tracking system **60** keeps track of acceptances which may be transmitted by individual consumers or delivered in bulk from interested parties such as lending institutions or utilities or third party marketing vendors. Such transmittal may be over a communication link such as, for example, the Internet, telephone lines or by computer readable media such as, for example, magnetic or optical storage media. Transmittal can also be accomplished by, for example, distribution to a central storage site on the public Internet, an intranet, a local area network (LAN), a wide area network (WAN) or a direct connection for further access or distribution. Alternatively, data can be transmitted verbally or through carrier delivery.

[**0045**] The report generation module **200** can be used to deliver capped bill quotes **50** directly to consumers and can be used to deliver individual easy-to-understand reports regarding potential or actual refunds produced by reconciliation module **120**. Also provided by the report generation module **200** are program overviews provided to interested parties such as, for example, lending institutions, utilities, and regulators to understand the status of the program on an aggregate basis, resolve issues regarding individual consumer accounts, and to program management staff for purposes of tuning the risk management portfolio.

[**0046**] The reconciliation module **120** tracks the non-customer-specific independent variables **140** with respect to each accepted capped bill offer **50** to determine the status of individual refunds that may be due. Information from the reconciliation module **120** on an individual consumer's account is disseminated through the report generation module **200**. In addition, the reconciliation module **120** keeps track of the status of instruments in the risk management portfolio to produce an aggregate view of current status of the program as a whole. This is reported through the report generation module **200** in the form of, for example, a portfolio tuning report. Risk strategies may be adjusted by selling or buying additional risk management instruments.

[**0047**] **FIG. 3** is a flow diagram illustrating a method of producing a fixed unit energy price for use in calculating a capped energy bill according to one embodiment of the present invention. Individual usage response functions for a large group of random customers **310** are exercised using a range of non-customer specific independent variable values **340** to Calculate the total value at specific values of non-customer specific independent variables **320**. The total value **320** is divided by the number of customers in the group to determine the average response curve per customer **330**. The average response curve per customer **330** is exercised using the range of non-customer specific independent variable values **340** and the range of potential accepted customer count **360** to simulate likely combinations of usage **350**. The results of the simulation are analyzed to determine the maximum and minimum credible requirements for usage **370**. The steps utilized in producing maximum and minimum credible requirements for usage **370** may be done in

various orderings. The results may be stored, for example, in the system database **180** or used immediately in subsequent steps.

[**0048**] Various combinations of fixed purchase volume or forward contracts **380** and volume for options or swing volume contracts **390** are analyzed. Different contract strikes for the options **390** and fixed purchase volume **380** yield different unit prices for the commodity delivered **400** and **410** and require different premiums **420**. In general, the fixed and option volumes **380** and **390** may be chosen to cover all usage scenarios from minimum to maximum credible requirements **370**. However, there may be instances when it is beneficial or prudent for the offeror to cover a wider or narrower range of usage. For example, a risk-averse offeror may cover a wider range of usage, while a risk-accepting offeror may self-absorb a portion of the risk and cover a narrower range of usage.

[**0049**] A simulation of total cost of supply **425** is performed at different volumes of usage specified in the simulation of likely combinations of usage **350** using prices for each of the various combinations of fixed purchase **380** and swing or options **390** and the resulting financial attributes **400**, **410** and **420** that are set by the combinations of **380** and **390**. The average unit cost of supply **450** at various volumes from the minimum to maximum credible requirements **370** is found by taking the total supply cost at that volume and dividing by the volume. For example, if the minimum volume is 10,000 units and the maximum volume is 20,000 units with pricing for a fixed volume of 10,000 units at \$40,000, and the option premium is \$20,000, and the purchase price for volume purchased under the option is \$5.00 per unit, the total cost of purchasing 10,000 units would be \$60,000 or \$6.00 per unit. The total cost of purchasing 20,000 units would be \$110,000, or \$5.50 per unit. In another example, if the minimum volume is 10,000 units and the maximum volume is 20,000 units with pricing for a fixed volume of 10,000 units at \$40,000, and the option premium is \$10,000, and the purchase price for volume purchased under the option is \$5.00 per unit, the total cost of purchasing 10,000 units would be \$50,000, or \$5.00 per unit. The total cost of purchasing 20,000 units would be \$100,000, or \$5.00 per unit. This example can be examined to show that the price is fixed from the minimum to maximum credible volumes.

[**0050**] In some instances, this simulation may be performed on a month-by-month basis over a period of time with financial instruments being exercised each month or it may be performed over a periodic basis with instruments being exercised once or more in the period.

[**0051**] A decision is made to choose a strategy **428** that supports the goals of the offeror. For instance, in the first case above, the offeror could make the capped bill offer to consumers based on the maximum unit price of the simulation \$6.00. Should the usage place the offeror in a favorable unit cost position, the offeror will realize additional gains. Using the prices in the second example, the offeror could forego additional gains in favor of a lower offering price to consumers. In an alternate selection, the offeror could use a \$5.50 price and take the risk of adverse effects caused by the usage volume. Another strategy is to select the flattest price from maximum to minimum consumption. Numerous other optimization goals and constraints could be used for this strategy process.

[**0052**] Once the strategy decision **428** has been made, the contracts are purchased for fixed supply volume **430** and options for swing supply **440**. An alternative to purchasing the physical commodity is to mirror the transaction using financial instruments. The fixed unit price used to calculate the capped bill **460** is determined using the strategy chosen **428** and the unit price response at various volume levels **450** and the addition of any fees for risk managements determined by the offeror. The above tasks may be performed in a different order or with a slightly different methodology without changing the scope of the invention.

[**0053**] **FIG. 4** represents cash flows to and from a consumer during the performance of a capped bill program when the total amount of the consumer's actual bill is greater than the total capped bill amount as well as the cash flows from the risk management instruments during the same period. For the sake of simplicity, the capped bill term is shown as a series of four quarterly payments, although it could consist of any number of payments agreed upon in the capped bill contract. In this example, the four payments are all part of a single capped bill period.

[**0054**] The capped bill amount **510** represents the amount the customer pays in each of the payment periods. The total of the capped bill amount **510** is the maximum amount the customer will pay for the capped bill during the capped bill program term. In this example, the capped bill amount **510** is constant over the four quarters and does not include fees. Fees may be included as a separate line item or may be bundled with the capped bill amount **510**. In a different example, each quarter could represent a different capped bill period, and the associated capped bill amounts could vary. The actual consumer bill **520** is the actual amount of the consumer's bill during the same capped bill program term. The bill difference **530** is calculated by subtracting the capped bill amount **510** from the actual consumer bill **520**. The cumulative bill difference **540** accumulates the individual bill differences **530**. In the alternate example, the cumulative bill difference **540** would be accumulated over each capped bill period. Refund calculations would be made at the end of each capped bill period. In this example, at the end of the capped bill program the cumulative bill difference **540** is positive at the end of the capped bill program. Financial entities offering this product may use a payment from risk management instruments **570** to pay all, a part or more than the amount of the actual consumer bill **520** that exceeds the capped bill amount **510**. In some cases however, the risk may be absorbed by the offeror. The payment from risk management instruments **570** may be remitted, for example, to a risk management contractor or directly to the supplier of the product covered by the capped bill program, such as a utility company in the case of a capped energy bill or a bank or mortgage company in the case of a borrowing.

[**0055**] **FIG. 5** represents the cash flows to and from the consumer during the performance of a capped bill program when the total amount of the consumer's actual bill is less than the total capped bill amount as well as the cash flows from the risk management instruments during the same period. For the sake of simplicity, the capped bill term is shown as a series of four quarterly payments, although it could consist of any number of payments agreed upon in the capped bill contract. In this example, the four payments are all part of a single capped bill period.

[0056] The capped bill amount **610** represents the amount a customer pays in each of the payment periods. The total of the capped bill amount **610** is the maximum amount the customer will pay for the capped bill during the capped bill program term. The actual consumer bill **620** is the actual amount of the consumer's bill during the same capped bill program term. The bill difference **630** is calculated by subtracting the capped bill amount **610** from the actual consumer bill **620**. The cumulative bill difference **640** accumulates the individual bill difference **630**. In this example the cumulative bill difference is negative. The total cumulative bill difference **640** is multiplied by the credit percentage **650**. The resulting credit to customer **660** is then refunded to the customer. If the cumulative bill difference **630** is positive at the end of the capped bill program, this represents the payment from risk management instruments **670** that will pay the amount of the actual consumer bill **620** that exceeds the capped bill amount **610**. The payment from risk management instruments **670** may be remitted, for example, to a risk management contractor or directly to the supplier of the product covered by the capped bill program, such as a utility company in the case of a capped energy bill or a bank or mortgage company in the case of a borrowing. As in the example in **FIG. 5**, there are numerous variations on capped bill periods that may be used.

[0057] It can be understood that the systems and methods of the present invention may be implemented using, for example, any suitable type of computer hardware, software, or combination thereof. Such software may be coded in any suitable computer programming language such as, for example, C or C++ using, for example, conventional or object-oriented techniques.

[0058] Although the present invention has been described herein with reference to certain embodiments, numerous modifications and variations can be made and still the result will come within the scope of the invention. No limitation with respect to the specific embodiments disclosed herein is intended or should be inferred.

We claim:

1. A method of providing one of a good or a service to at least one entity at one of a payment, rate, or price that is capped at a pre-determined amount, comprising:

producing an offer for the entity, wherein the offer represents at least one of a capped maximum payment, a capped maximum rate, a capped maximum usage, a capped maximum consumption, or a capped maximum price amount; and

providing the good or service to the entity at one of a payment, rate, or price that may fluctuate, wherein the payment, rate, or price cannot exceed the capped maximum payment, capped maximum rate, capped maximum usage, capped maximum consumption, or capped maximum price amount.

2. The method of claim 1, further comprising building a model that profiles the entity based on a plurality of data regarding the entity.

3. The method of claim 1, further comprising constructing a model of risk relating to the entity.

4. The method of claim 1, further comprising processing the plurality of data regarding the entity.

5. The method of claim 1, wherein the entity is selected from the group consisting of a consumer, a broker, a marketer, an originator, an aggregator, and a wholesaler.

6. The method of claim 1, further comprising producing a profile that represents the type and weighting of entities likely to accept the offer.

7. The method of claim 1, further comprising tracking one of an actual payment, an actual rate, or an actual price of the good or service.

8. The method of claim 1, further comprising tracking one of consumption or rates of the good or service by the entity.

9. The method of claim 1, further comprising tracking whether the offer is accepted by the entity.

10. The method of claim 1, further comprising one of purchasing at least one risk management instrument or selling at least one risk management instrument.

11. The method of claim 1, wherein the good or service is a money lending service.

12. The method of claim 1, wherein the good or service is an energy product.

13. The method of claim 1, further comprising providing a refund to the entity.

14. A capped bill calculation system, comprising:

a data input module in communication with a data storage medium for receiving data from at least one entity; and

a capped bill offer generation module for generating an offer, wherein the offer offers one of a good or a service at a price that may fluctuate, and wherein an actual price of the good or service cannot exceed the maximum amount.

15. The system of claim 14, wherein the data storage medium includes a database.

16. The system of claim 14, further comprising a risk module in communication with the data storage medium for developing a strategy for purchasing at least one risk instrument that is used to offset a risk associated with offering one of a good or service at a price that is capped at a maximum amount.

17. The system of claim 14, further comprising a data cleaning module in communication with the data storage medium for correcting inaccuracies relating to the data.

18. The system of claim 14, further comprising an acceptance tracking system in communication with the data storage medium for tracking whether the entity has accepted the offer.

19. The system of claim 14, further comprising a report generation module in communication with the data storage medium.

20. The system of claim 14, further comprising a reconciliation module in communication with the data storage medium.

21. The system of claim 14, wherein the risk module includes an individual risk module and an aggregate risk module.

22. The system of claim 14, wherein the good or service is a money lending service.

23. The system of claim 14, wherein the good or service is an energy product.

24. A computer-readable medium having stored thereon instructions which, when executed by a processor, cause the processor to:

produce an offer for an entity, wherein the offer represents at least one of a capped maximum payment, a capped

maximum rate, a capped maximum usage, a capped maximum consumption, or a capped maximum price amount; and

provide one of a good or service to the entity at one of a payment, rate, or price that may fluctuate, wherein the payment, rate, or price cannot exceed the capped maximum payment, capped maximum rate, capped maximum usage, capped maximum consumption, or capped maximum price amount.

**25.** An apparatus, comprising:

means for producing an offer for an entity, wherein the offer represents at least one of a capped maximum payment, a capped maximum rate, a capped maximum usage, a capped maximum consumption, or a capped maximum price amount; and

means for providing one of a good or service to the entity at one of a payment, rate, or price that may fluctuate, wherein the payment, rate, or price cannot exceed the capped maximum payment, capped maximum rate, capped maximum usage, capped maximum consumption, or capped maximum price amount.

**26.** A method of providing an energy product to a consumer at a payment that is capped at a predetermined amount, comprising:

producing an offer for the consumer, wherein the offer represents a capped maximum payment; and

providing the energy product to the consumer at a payment that may fluctuate, wherein the payment cannot exceed the capped maximum payment.

**27.** A method of providing a financial product to a consumer at one of a payment or a rate that is capped at a predetermined amount, comprising:

producing an offer for the consumer, wherein the offer represents one of a capped maximum payment or a capped maximum rate; and

providing the financial product to the consumer at one of a payment or a rate that may fluctuate, wherein the payment or rate cannot exceed the capped maximum payment or the capped maximum rate.

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